

January 29 to February 4, 2012 (Week 05)

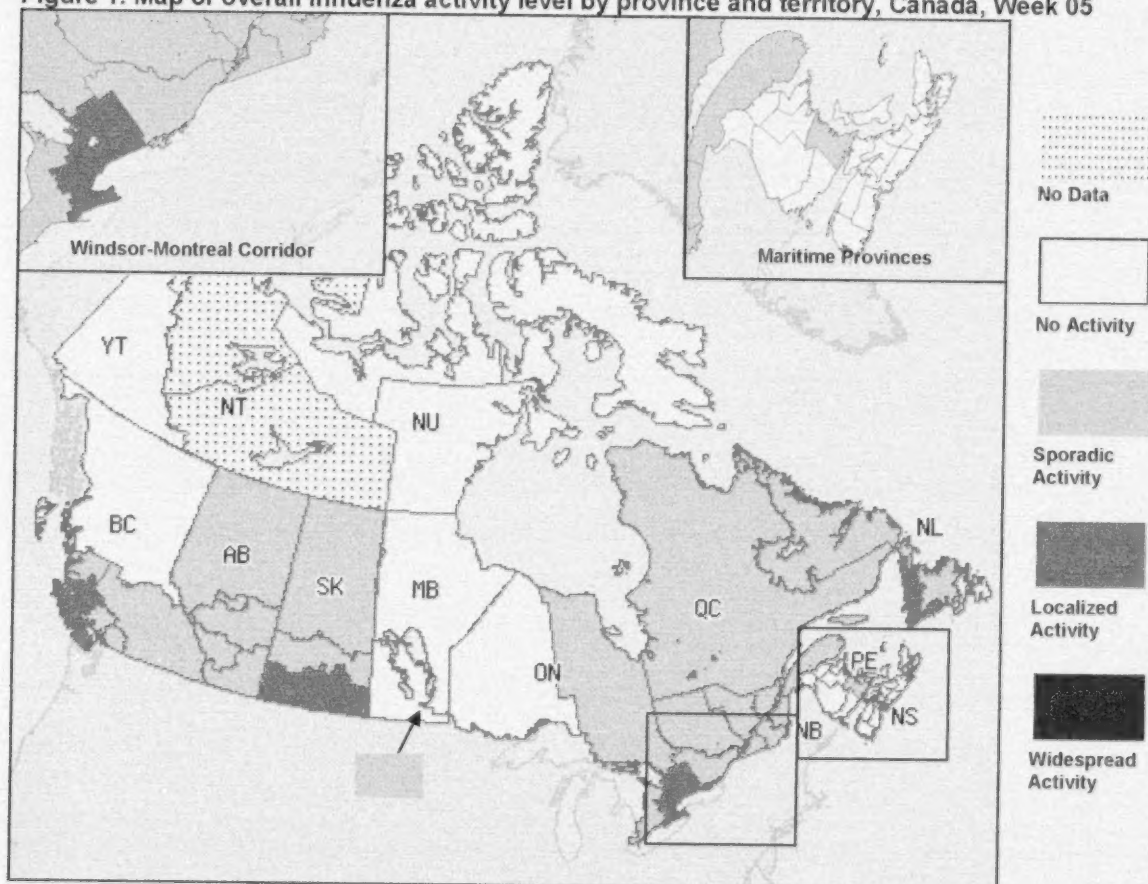
Overall Influenza Summary

- Influenza activity in Canada continues to increase gradually; activity remains low in the Territories and in a few other regions across the country
- Six regions reported localized influenza activity and 23 regions reported sporadic influenza activity
- Nine outbreaks of influenza were reported this week (7 in LTCFs and 2 others)
- In week 05, 230 laboratory detections of influenza were reported (83 A/H3, 24 A(H1N1)pdm09, 43 A untyped and 80 B)
- The percent positive for influenza B detections has been increasing over the past several weeks; to date, 76% of all influenza detections were for influenza A viruses and 24% for influenza B
- Twenty-four influenza-associated hospitalizations were reported this week (4 paediatric and 20 adult)
- The national ILI consultation rate increased this week compared to the previous three weeks but remains within expected levels for this time of year.

Influenza Activity (geographic spread) and Outbreaks

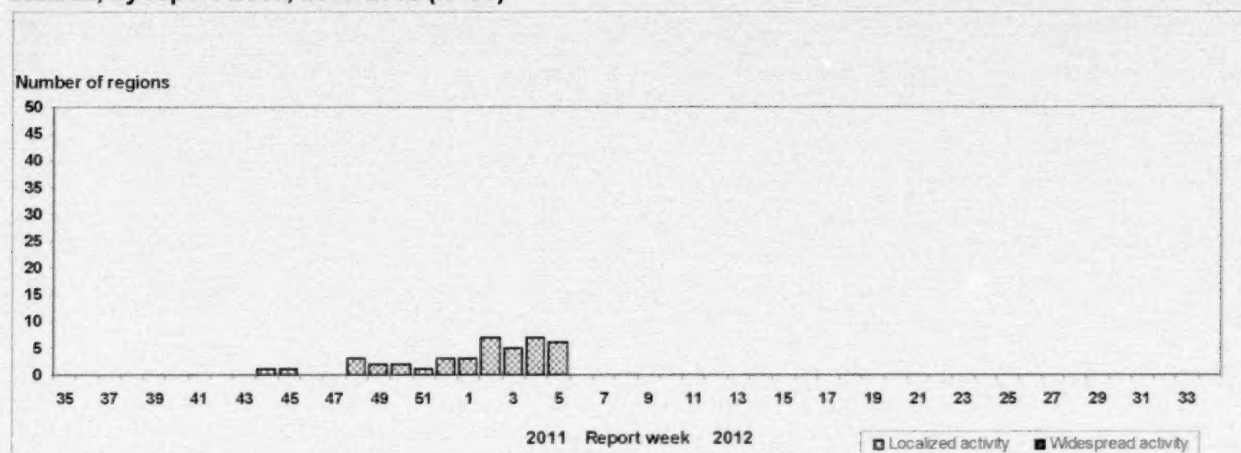
In week 05, six surveillance regions (within BC, SK, ON, & NL) reported localized activity and 23 regions (within BC, AB, SK, MB, ON, QC, NB, & NL) reported sporadic influenza activity (see Figure 1). Nine outbreaks of influenza were reported this week: 7 in long-term care facilities (5 in ON, 1 in BC & 1 in SK) and 2 others (in ON & NL) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 05



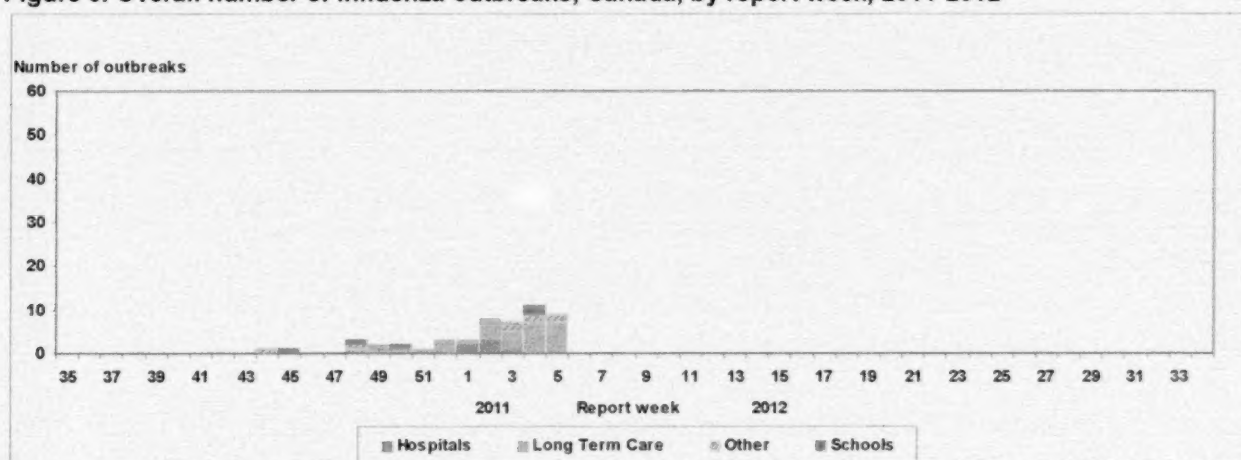
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

In week 05, the proportion of positive influenza tests increased this week compared to the previous week (6.4% or 230/3,595) (Figure 4 & 5). Of the 230 positive influenza detections this week, 150 (65%) were positive for influenza A and 80 (35%) were positive for influenza B. To date this season, the provinces with the highest proportion of influenza B detections compared to influenza A detections include: NL, NB, ON & QC.

The proportion of influenza virus detections by type/subtype this season to date is as follows: 75.8% influenza A (67.4% - A(H3); 12.2% - A(H1N1)pdm09; 20.4% - untyped) and 24.2% influenza B (Table 1).

Detailed information on age and type/subtype were received on 1,004 cases to date this season (Table 2). The proportions of cases by age group are as follows: 21.9% were < 5 years; 11.6% were between 5-19 years; 24.8% were between 20-44 years; 14.8% were between 45-64 years of age; 26.7% were ≥ 65 years; and 0.2% with age unknown.

In week 05, the proportion of tests positive for RSV was 18.2% (and has fluctuated between 17-19% since week 01) and remains the most prevalent among the other respiratory viruses being detected. The highest percent positives for RSV this week were reported in ON, QC and the Atlantic Region. The proportion of positive tests for the other respiratory viruses all declined slightly from the previous week (rhinovirus-5.4%; parainfluenza-2.0%; adenovirus-2.7%; hMPV-5.2%; coronavirus-5.9%) (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada report](#).

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	January 29 to February 4, 2012						Cumulative (August 28, 2011 to February 4, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	25	0	21	4	0	5	252	0	242	10	0	22
AB	26	0	21	0	5	4	195	0	177	8	10	19
SK	33	0	26	2	5	0	114	0	97	3	14	1
MB	3	0	2	0	1	1	9	0	4	0	5	2
ON	30	0	12	14	4	43	146	0	50	75	21	120
QC	31	0	0	4	27	20	135	0	4	8	123	73
NB	2	0	1	0	1	1	2	0	1	0	1	2
NS	0	0	0	0	0	1	0	0	0	0	0	1
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	5	1	0	1	0	0	33
Canada	150	0	83	24	43	80	854	0	576	104	174	273

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Jan. 29 to Feb. 4, 2012)					Cumulative (Aug. 28, 2011 to Feb. 4, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total
<5	14	0	8	6	11	156	32	87	37	64
5-19	8	0	5	3	9	88	7	73	8	28
20-44	29	1	12	16	7	208	11	145	52	41
45-64	15	3	8	4	4	130	13	86	31	19
65+	20	1	14	5	10	220	9	182	29	48
Unknown	1	1	0	0	0	2	1	1	0	0
Total	87	6	47	34	41	804	73	574	157	200

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

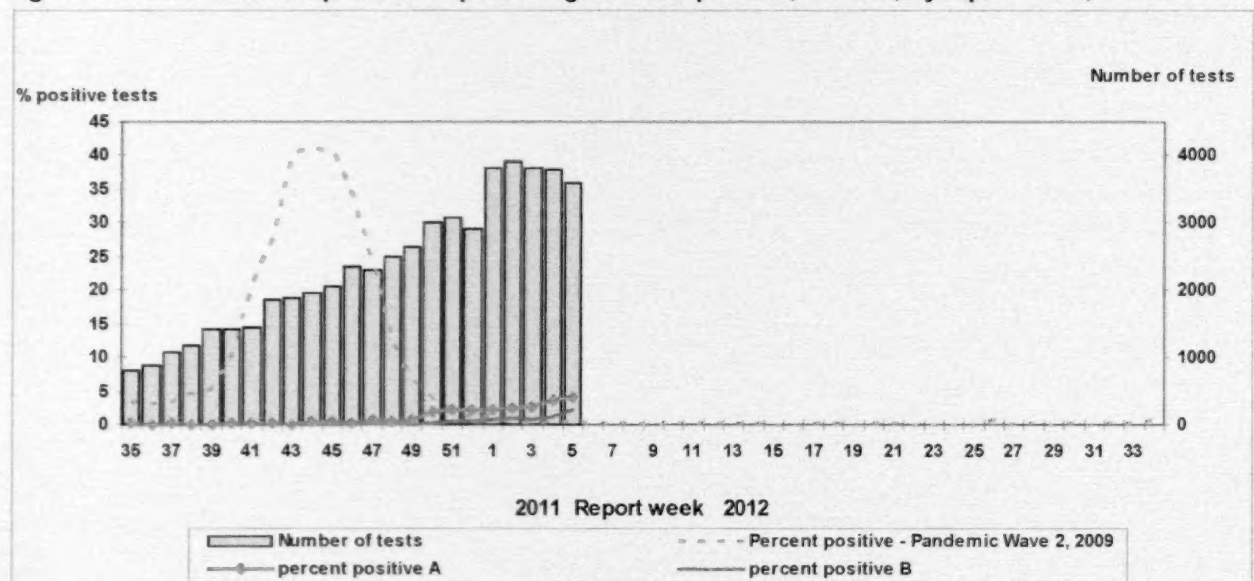
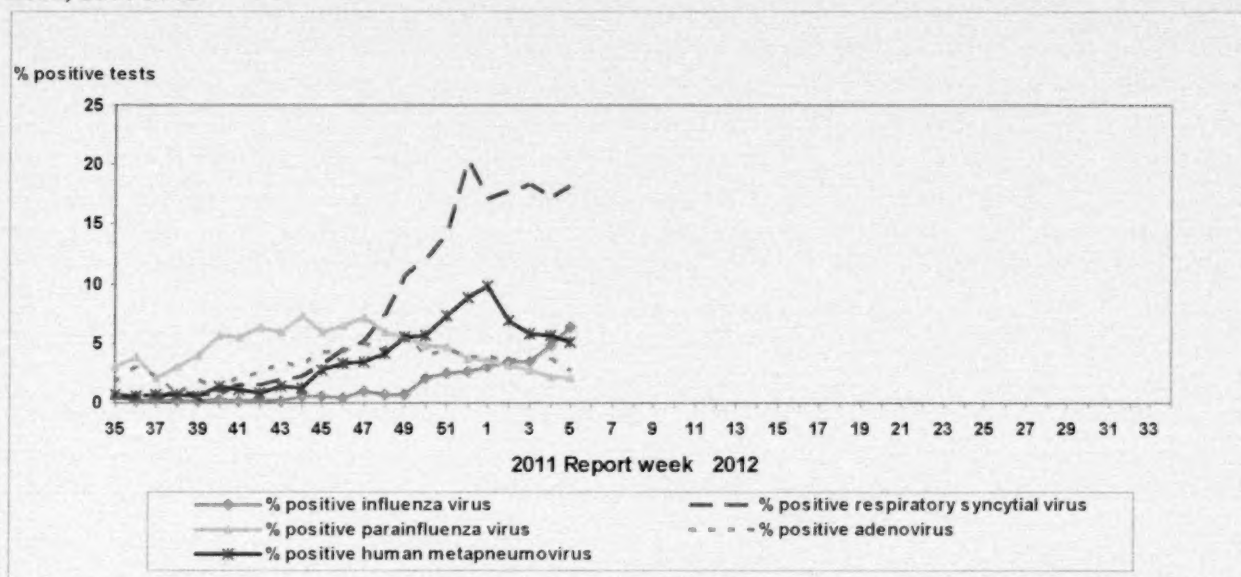


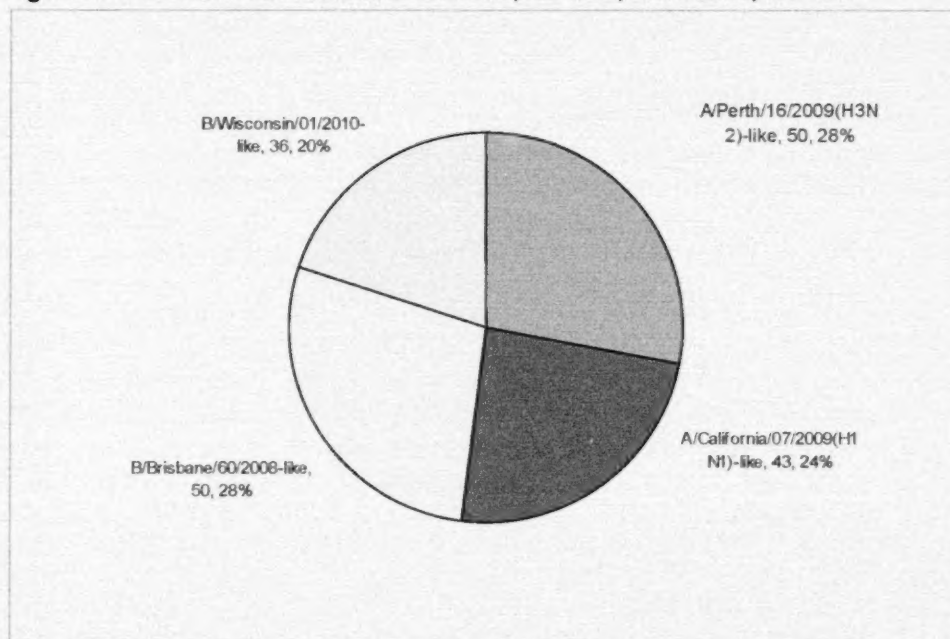
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 179 influenza viruses (50 A/H3N2, 43 A/H1N1 and 86 B). All 50 A/H3N2 viruses (from BC, AB, SK, ON & QC) are antigenically related to A/Perth/16/2009. All 43 A/H1N1 viruses (from QC & ON) are antigenically related to A/California/07/2009. Fifty of the 86 influenza B viruses characterized (from BC, AB, SK, ON, QC & NL) are antigenically related to the vaccine strain B/Brisbane/60/2008 (Victoria lineage). The remaining 36 influenza B viruses (from BC, AB, ON, QC & NB) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 179



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 174 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 171 influenza viruses for resistance to zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 116 influenza A viruses (71 H3N2 and 45 H1N1) were tested for amantadine resistance; all but one influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

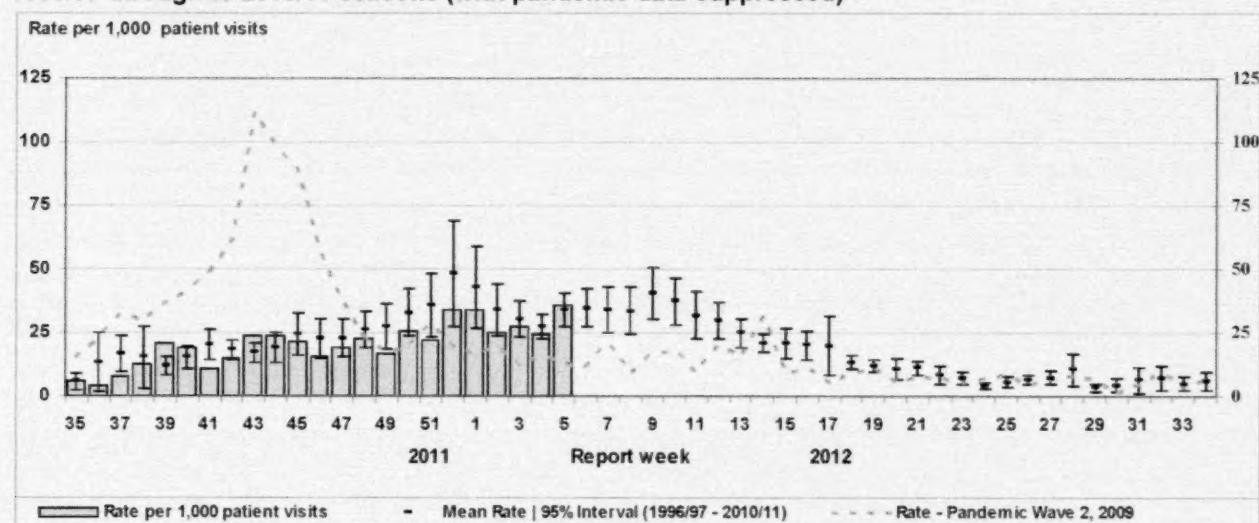
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	48	0	48	0	71	70 (98.6%)
A (H1N1)	41	0	41	0	45	45 (100%)
B	85	0	82	0	NA*	NA*
TOTAL	174	0	171	0	116	115 (99.1%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate increased to 35.8 ILI consultations per 1,000 patient visits in week 05 but still remains within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in those 5 to 19 years old (64.7/1,000) and in children under 5 (64.5/1,000 visits).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 05, four new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. One hospitalization was due to influenza A (unsubtyped) (in SK) and three were due to influenza B (in AB, ON & QC).

To date this season, 44 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, ON & QC); 29 (65.9%) were due to influenza A and 15 (34.1%) were due to influenza B. The proportion of cases by age group is as follows: 20.5% among infants <6 months of age; 18.2% among children 6-23 months of age; 38.6% were between 2-4 years; 11.4% were between 5-9 years; and 11.4% were between 10-16 years.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Adult Influenza Hospitalizations and Deaths

In week 05, 20 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 12 in ON, 7 in AB and 1 in NL. In addition, two influenza-associated deaths were reported in ON in week 05; both adults were ≥ 65 years old and had influenza B infection.

To date this season, 90 influenza-associated adult hospitalizations have been reported from five provinces (AB, SK, MB, ON & NL). The proportion of cases by age group is as follows: 27.0% were in those 20-44 years of age; 28.1% were in those 45-64 years of age and 44.9% were in those ≥ 65 years. In addition, 4 adult influenza-associated deaths have been reported to date this season (from ON & MB); all had influenza B infection and all were ≥ 65 years old.

Note: The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, QC, & NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since February 3, 2012.

[World Health Organization influenza update](#)

PAHO: In week 4, influenza activity in North America increased but remained within the expected level for this time of year with the predominant viruses being influenza A(H3N2) in Canada and the United States and influenza A(H1N1)pdm09 in Mexico. In Mexico, as of February 3rd, the Ministry of Health reported 2,815 influenza cases and 58 deaths associated with influenza; of which, 90.4% of the cases and 93.1% of the deaths were associated with influenza A(H1N1)pdm09. In addition, of the total samples analyzed in week 4, the proportion positive for influenza (50%) was similar to the previous week.

In Central America and the Caribbean, influenza activity remained low or within the expected level for this time of year except in Costa Rica where a predominance of adenovirus and influenza A(H3N2) were reported. In South America, influenza activity and acute respiratory illness activity remained low or within the expected level for this period of time; increased RSV activity and co-circulation of influenza A(H3N2) and influenza A(H1N1)pdm09 were reported in Ecuador.

[Pan American Health Organization influenza situation report](#)

United States: In week 4, the CDC reported that 7.2% (262/3,656) of influenza tests were positive. Since October 1, 2011, the CDC characterized 268 influenza viruses: 29 A/H1N1, 211 A/H3N2 and 28 B. Twenty-eight (96.6%) of the A/H1N1 viruses were characterized as A/California/7/2009-like and 1 (3.4%) showed reduced titers with antiserum produced against A/California/7/2009. Of the 211 influenza A/H3N2 viruses that were characterized, 208 (98.6%) were A/Perth/16/2009-like and 3 (1.4%) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 28 influenza B viruses that were characterized, 14 (50%) were B/Brisbane/60/2008-like (B/Victoria lineage) and 14 (50%) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 1.5%, which is below the national baseline. Regional influenza activity was reported in 6 states, 8 states reported localized influenza activity, while the rest reported either sporadic or no activity.

[Centers for Disease Control and Prevention seasonal influenza report](#)

Europe: In week 5, a gradual increase of influenza activity was observed in the WHO European Region; however in some countries (Italy, Kyrgyzstan and Spain), influenza activity may have peaked and may be leveling off. Consultation rates for ILI and acute respiratory infection (ARI) are increasing in most countries in the Region. Approximately 37% of sentinel samples tested positive for influenza, which is an increase over the previous week. Influenza A(H3N2) continues to be the dominant virus circulating in the Region with relatively few detections of influenza A(H1N1)pdm09 and B viruses being reported. Since week 40, 103 influenza viruses have been characterized antigenically: 2 were A/California/7/2009 (H1N1)-like; 91 were A/Perth/16/2009 (H3N2)-like; 3

were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 3 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 4 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).

EuroFlu weekly electronic bulletin

Human Avian Influenza Updates

One new case of human A/H5N1 avian influenza infection was reported by the WHO this week from Viet Nam. The case was a 26 year-old pregnant female from Soc Tran province who developed symptoms on January 23, 2012, was hospitalized on January 25, was treated with Oseltamivir on January 27, and died on January 28. Samples from the newborn infant of the fatal case tested negative for H5N1. Epidemiological investigations revealed that the case had slaughtered and eaten sick chickens.

WHO Avian influenza situation updates

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.